UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/00599

September 26, 2002

Mr. Bob Graham
Natural Resource Conservation Service
101 SW Main Street
Suite 1300
Portland, Oregon 97204

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for the National Resources Conservation Service Bank Stabilization and Barb Repair Project, Calapooia River, Linn County, Oregon.

Dear Mr. Graham:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed National Resources Conservation Service (NRCS) Bank Stabilization and Barb Repair Project on the Calapooia River in Linn County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*).

As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action. This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Anne Mullan of my staff in the Oregon Habitat Branch at 503.231.6267.

Sincerely,

For Michael R Course

D. Robert Lohn
Regional Administrator

cc: Mark Gronceski, COE
John Marshall, USFWS
Steve Mamoyac, ODFW
Patti Caswell, ODSL
Tom Melville, ODEQ

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Bank Stabilization and Barb Repair Project,
Calapooia River,
Linn County, Oregon

Agency:	Natural Resources Conservation Service
Consultation Conducted By:	NOAA Fisheries, Northwest Region
Date Issued:	September 26, 2002
Issued by:	F.r Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2002/00599**

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1. ENDANGERED SPECIES ACT

1.1 Background

On June 10, 2002, the National Marine Fisheries Service (NOAA Fisheries) received a request from the National Resources Conservation Service (NRCS) for Endangered Species Act (ESA) section 7 formal consultation for a barb repair project on the Calapooia River in Linn County, Oregon. The biological assessment (BA) provided by the NRCS with the request for consultation determined that the proposed activities covered would be "likely to adversely affect" anadromous fish species listed under the ESA.

In September 2001, on a project funded by the NRCS, three rock barbs were constructed along 535 feet of the Calapooia River channel to reduce erosion, which was estimated at 10 feet of bank annually. That winter, high streamflows flanked the barbs because they were keyed only into the base of the first terrace. NRCS proposes to fund a repair project that will re-install the rock barbs, keying them into the full height of the existing bank. They will also reshape the previously excavated benches, and plant the benches with native grasses, shrubs and trees.

The Calapooia River supports Upper Willamette River (UWR) chinook salmon *(Oncorhynchus tshawytscha)* and UWR steelhead *(O. mykiss)*. UWR chinook salmon were listed as threatened under the ESA by NOAA Fisheries on March 24, 1999 (64 FR 14308). Protective regulations for UWR chinook salmon were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). UWR steelhead were listed as threatened under the ESA by NOAA Fisheries on March 25, 1999 (64 FR 14517). Protective regulations for UWR steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). The objective of this biological opinion (Opinion) is to determine whether the proposed action is likely to jeopardize the continued existence of UWR chinook salmon or UWR steelhead.

1.2 Proposed Action

The project is located on farmland at approximately river mile 34.5 on the Calapooia River, two miles east of the city of Brownsville, along Highway 228 in Linn County, Oregon. The existing rock barbs will not be removed. The rock barbs will be repaired by keying them into the bank at the full height of the original terrace. The benches adjacent to the barbs will be reshaped, with vertical slopes of 3:1. A coconut fiber blanket will be placed over the excavated areas, and secured with toe rock on the slope or with stakes. The excavation will include a total of 510 cubic yards (cy) of streambank, and 120 cy of rock will be placed in the barbs, in addition to the 195 cy placed last year. Of the totals, 150 cy of excavation and 95 cy of rock will be below ordinary high water. Slopes and benches will be planted with native grasses, shrubs, and trees to replace those lost from the previous year's project. Excavated soil will be deposited in upland areas. To prevent livestock from entering the riparian area, a temporary fence will be erected annually.

1.3 Biological Information

The action area is defined by NOAA Fisheries regulations (50 CFR 402.02) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area for the proposed project extends 500 feet downstream from the site on the bank of the Calapooia River. UWR spring chinook and UWR steelhead have spawning and rearing habitat in the river above Brownsville (ODFW 2001).

This project is part of a conservation plan for the property developed by NRCS to reduce erosion of the streambank, and to manage nutrients and pests. No details of the pest and nutrient management components were provided in the biological assessment, and those actions are not covered by this Opinion.

In a watershed analysis prepared for the Bureau of Land Management (Western Watershed Analysis 1999), the Calapooia River watershed was described as having predominantly forest and agricultural production. Agriculture operations included grass seed, dairy, and livestock production primarily restricted to the valley bottoms. The low elevation alluvial areas were generally at a gradient below 1%, and the river was described as well-confined by relatively high old terraces, although bordered by more recent and lower elevation floodplain terraces in some relatively isolated areas. Extensive riparian areas and aquatic habitat supported anadromous and resident salmonid fisheries within the watershed.

The analysis described watershed precipitation as mostly rainfall, with 70% or more of annual precipitation falling in November through March. Streamflow recorded by the U.S. Geological Survey at Holley, located approximately 12 miles upstream, from 1933 through 1990 showed mean annual streamflow is 437 cubic feet per second (cfs). Streamflow patterns reflect the annual distribution of precipitation, with flows increasing rapidly from their seasonal lows (less than 50 cfs) in the early fall to peak flows. Approximately 60% of all annual peak streamflows occurred in December and January. The largest peak flow of record at Holley (12,600 cfs), occurred on December 22, 1964. A flood of similar magnitude is inferred to have occurred in 1996, based on large floods observed at gaging stations on surrounding rivers. Over the period from 1936 to 1990, the mean annual peak flow at Holley was 5042 cfs (USGS 2002).

Biological information on UWR chinook salmon may be found in Myers *et al.* (1998), and information on UWR steelhead in Busby *et al.* (1995, 1996).

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402.14. NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the biological requirements and current status of the listed species, and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action. For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list UWR chinook salmon and UWR steelhead for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for UWR chinook salmon and UWR steelhead to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration, spawning, holding, and rearing. The current status of UWR chinook salmon and UWR steelhead, based upon their risk of extinction, has not significantly improved since the species were listed.

The Calapooia River serves as spawning and rearing habitat for UWR chinook and UWR steelhead. Based on migratory and other life history timing, it is not likely that adults would be present in the action area when project activities would occur. The proposed project may affect chinook and steelhead habitat, including water quality, water temperature, water velocity, cover, food, and riparian vegetation. These are modified by shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

<u>UWR chinook salmon</u>.
The UWR chinook salmon ESU includes native spring-run populations above Willamette Falls and in the Clackamas River. In the past, it included sizable numbers of spawning salmon in the Santiam River, the middle fork of the Willamette River, and the McKenzie River, as well as smaller numbers in the Calapooia River and other rivers.

Although the total number of fish returning to the Willamette River has been relatively high (24,000), about 4,000 fish now spawn naturally in this ESU. There are no direct estimates of the size of the chinook salmon runs in the Willamette basin before the 1940s. McKernan and Mattson (1950) present anecdotal information that the Native American fishery at Willamette Falls may have yielded 2,000,000 lb of salmon (454,000 fish, each weighing 20 lb). Based on egg collections at salmon hatcheries, Mattson (1948) estimates that the spring chinook salmon run in the 1920s may have been five times the run size of 55,000 fish in 1947 (275,000 fish).

Fish in this ESU are distinct from those of adjacent ESUs in life history and marine distribution. The life history of chinook salmon in the UWR ESU includes traits from both ocean- and stream-type development strategies. UWR chinook salmon mature in their fourth or fifth years. Historically, 5-year-old fish dominated the spawning migration runs, recently, however, most fish have matured at age 4. The timing of the spawning migration is limited by Willamette Falls. High flows in the spring allow access to the Upper Willamette basin, whereas low flows in the summer and autumn prevent later-migrating fish from ascending the falls.

In the Calapooia River, ODFW spawning surveys from 1996-2001 show the number of spring chinook redds per mile varying from a high of 5.2 redds per mile in 1998, to a low of 2.1 redds per mile in 2001, with an average of 2.6 redds per mile (Galovich, pers. comm. 9-13-02)

UWR steelhead.

The UWR steelhead ESU occupies the Willamette River and its tributaries upstream of Willamette Falls extending to, and including, the Calapooia River. Rivers that contain naturally-spawning winter-run steelhead include the Tualatin, Molalla, Santiam, Calapooia, Yamhill, Rickreall, Luckiamute, and Mary's. Native winter steelhead within this ESU have been declining since 1971, and have exhibited large fluctuations in abundance. In general, native steelhead of the Upper Willamette basin are late-migrating winter steelhead, entering freshwater primarily in March and April. This atypical run timing appears to be an adaptation for ascending Willamette Falls, which functions as an isolating mechanism for UWR steelhead. Reproductive isolation resulting from the falls may explain the genetic distinction between steelhead from the Upper Willamette basin and those in the lower river. UWR late-migrating steelhead are ocean-maturing fish. Most return at age 4, with a small proportion returning as 5-year-olds (Busby *et al.* 1996).

In the Calapooia River, ODFW spawning survey records from 1980-1997 show the number of late-run winter steelhead redds per mile varying from a high of 15.8 redds/mile in 1985, to as low as 1.1 redd/mile in 1993, with an average of 7.4 redds/mile. The range estimated for the run size varied from 744 in 1988, to 21 in 1993.

1.4.2 Environmental Baseline

Regulations implementing section 7 of the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of state and private actions that are contemporaneous with the consultation in progress. The action area is defined in 50 CFR 402.02 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

The identified action will occur within the range of UWR chinook salmon and UWR steelhead. The defined action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, and for generating sediment and pollutants. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities includes the immediate watershed where the barbs will be repaired, and those areas upstream and downstream that may reasonably be affected temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of the Calapooia River, extending upstream to the edge of disturbance, and extending downstream 500 feet. Other areas of the Calapooia River watershed are not expected to be directly or indirectly impacted. The project area serves as spawning and rearing habitat for adult and juvenile steelhead and chinook salmon.

In the Willamette River basin, channelization, dredging, and other activities have reduced rearing habitat (*i.e.*, stream shoreline) by as much as 75%. In addition, dams have blocked access to spawning habitat, and altered the hydrologic and temperature regime, affecting the timing of development of naturally-spawned eggs and fry. Water quality is also affected by development and other economic activities. Agricultural and urban land uses as well as timber harvesting contribute to increased erosion and sediment load in Willamette River basin streams and rivers. In the upper Calapooia River watershed, heavy logging included the use of splash dams, reinforcing the natural fluctuation of peak and low flows. The peak flows from the dams scoured gravel and removed large woody debris from the system. Current dams on the Calapooia are at Brownsville, Sodom Ditch, and Thompson, and are all downstream of the project site and all are providing fish passage.

Hatchery production in the basin began in the late nineteenth century. Eggs were transported throughout the basin, resulting in current populations that are relatively homogeneous genetically (although still distinct from those of surrounding ESUs). Hatchery production continues in the Willamette River, and is responsible for as much as 90% of chinook escapement in the basin. Harvest on the UWR chinook ESU is high, both in the ocean and in-river. The total in-river harvest below the falls from 1991 through 1995 averaged 33%, and was much higher before 1991. Ocean harvest was estimated as 16% for 1982 through 1989. ODFW (1998) indicates that total (marine and freshwater) harvest rates on UWR spring-run stocks were

reduced considerably for the 1991 through 1993 brood years, to an average of 21%. For the UWR chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 1.01 to 0.63, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

Recent estimates of the percentage of naturally-spawning UWR steelhead attributable to hatcheries in the late 1990s are less than 5% in the Calapooia (Chilcote 1997). For the UWR steelhead ESU as a whole, NOAA Fisheries estimates that the lambda over the base period ranges from 0.94 to 0.87, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).
The Oregon Department of Environmental Quality (ODEQ) is required by the Federal Clean Water Act (CWA) to assess water quality throughout the state and to maintain a list of steam segments that do not meet water quality standards. These streams are water-quality limited, and the list is called the 303(d) list because of the section of the Clean Water Act that requires the list be maintained.

This stretch of the Calapooia River is on the 303(d) list (ODEQ 2002) for temperature, with 94% of ODEQ data summer values exceeding the standard (64 ˚F), with a maximum of 80.6 ˚F. Other 303(d) criteria for which it is listed are dissolved oxygen, and bacteria (fecal coliform) much of which is due to livestock and septic systems. In addition to these pollutants, there are other factors which limit the value and quality of habitat for fish. Many wetlands, meanders, and off-channel habitat features have been eliminated through the use of revetments and other methods to keep the river from encroaching on cultivated land. This has reduced the overall habitat complexity, which results in changes in species abundance, composition, and distribution. Those channel stream banks which have been stabilized with riprap have reduced riparian vegetation that would contribute to the deposition of large woody debris, shade to cool the river in the summer, and benthic input.

In the immediate vicinity of the project, areas upstream and downstream are riprapped on the opposite bank. The area has a long history of stream channelization, riprap placement, dike installation, irrigation and other water withdrawals. The river has moved to previously channelized areas, widening and rebuilding the floodplain, contributing to erosion on the project area bank. Nearby the river banks are vertical with no appreciable vegetation. The river reach area has cobble and gravel bottom, riffles, bends, eroding banks, gravel bars and some woody debris. Exotic species such as blackberry, thistle, Scotch broom, bullfrog, and largemouth bass add to the conservation difficulties. Native vegetation in the general area include black cottonwood, big-leaf maple, grasses, willows, and teasel.

Based on the best available information on the current status of UWR steelhead and chinook salmon range-wide, the population status, trends, and genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of the identified ESUs within the action area are not currently being met. The

Calapooia River has degraded habitat resulting from agricultural and forestry practices, water diversions, road construction, urbanization, recreation, and flood control. The following habitat indicators are functioning at risk within the action area, predominantly at unacceptable risk as noted in the NRCS BA: Temperature, sediment, chemical contamination/nutrients, substrate, large woody debris, off-channel habitat, pool frequency and quality, refugia, width/depth ratio, streambank condition, floodplain connectivity, peak/base flows, increase in drainage network, riparian reserves, and disturbance history. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UWR steelhead and UWR chinook salmon.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of actions are expressed in terms of the expected effect, to restore, maintain, or degrade, on aquatic habitat factors in the project area. The current status of the site is degraded because of the lack of riparian vegetation, the lack of large woody debris (instream structure), the lack of flow refugia and off-channel habitat, and the effects of existing rock on channel morphology, water temperatures, and salmonid behavior.

The proposed action has the potential to cause the following impacts to UWR chinook and UWR steelhead:

1. The use of riprap has the potential to change salmonid migration and rearing behavior, at least temporarily. Reduced densities of chinook salmon have been found in the vicinity of riprap-stabilized banks that do not incorporate large woody debris (Beamer and Henderson, 1998). Consequently, the placement of rock at this location may have temporary harmful effects by changing the migrating behavior of adult chinook before the project stabilizes.

2. In-water work has the potential to increase erosion from the streambed, and turbidity in the river. Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment. Localized increases of erosion/turbidity during in-water work will likely displace UWR chinook, UWR steelhead, and other fish in the project area, and disrupt normal behavior. These effects are expected to be temporary (occurring during rock placement) and localized.

3. The direct effects of a barb include redirection of instream flow away from the bank and toward the thalweg. This is believed to improve bank stability along smoothed channel or bends, especially when used in combination with bioengineering techniques (Washington Department of Fish and Wildlife *et al.* 2000). This combination is most effective for reducing bank erosion along the outer edge of the channel migration zone in reaches where sedimentation and flows remain relatively constant over time. Barbs are designed to be overtopped by channel forming flows. This ensures that any direct effect they may have on channel forming processes or floodplain connectivity are avoided or minimized.

4. The indirect effects of construction of a barb can also include the beneficial effects due to development of scour holes, deepened pools, and other low energy habitats useful as juvenile rearing areas down-gradient of the barb (USEPA 1998, Piper *et al.* 2001).

5. The long-term benefits will include reduction in the amount of sediment that is entering the Calapooia River from the flanked revetment, and improved riparian vegetation as the plantings placed in the disturbed areas mature.

The effects of these activities on UWR chinook, UWR steelhead, and aquatic habitat will be limited by implementing construction methods and approaches, included in the project design, that are intended to avoid or minimize impacts. These include:

1. Placing rock below ordinary high water during the ODFW designated in-water work period, June 1 through September 30 (ODFW 2000).

2. Using only large, clean rock will ensure that the rock will stay in place, and not be washed downstream during high water events. Using an excavator to place the rock, instead of end-dumping it from a truck, will limit turbidity and sedimentation.

3. Ensuring that planted vegetation becomes established by monitoring, and replacing failed plantings as necessary. Over the long term, the replacement riparian vegetation will mature and provide shade to cool the water. Additionally, successfully replanted native trees provide potential future contributions of large wood debris.

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater impacts to listed species than presently occurs. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years**.**

1.6 Conclusion

NOAA Fisheries has determined, based on the available information, that the proposed action covered in this Opinion is not likely to jeopardize the continued existence of listed salmonids. NOAA Fisheries used the best available scientific and commercial data to apply its jeopardy analysis, analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NOAA Fisheries believes that the proposed action would cause a minor, short-term degradation of anadromous salmonid habitat due to the loss of riparian habitat and the turbidity caused by project construction.

1.7 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species or to develop additional information. NOAA Fisheries believes the following conservation recommendation is consistent with these obligations, and therefore should be carried out by the NRCS:

1. Each barb will incorporate woody riparian planting, to avoid or minimize loss of riparian function associated with more traditional approaches to streambank protection that rely primarily on rock.

1.8 Reinitiation of Consultation

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) if the action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of ESA-listed salmonids because of detrimental effects from increased turbidity levels and in-water work. Effects of actions such as the one covered by this Opinion are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on habitat or population levels. Therefore, even though NOAA Fisheries expects some low level incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable."

Based on the information provided by the NRCS and other available information, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the action covered by this Opinion. The extent of the take is limited to the action area.

2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered by this Opinion. The NRCS shall include measures that will:

1. Minimize the amount and extent of incidental take from rock placement in the Calapooia River channel, by taking measures to limit the extent of rock placement in the channel, to

design the work so that harmful effects to channel morphology are minimized, and to schedule such work when the fewest number of fish are expected to be present.

2. Minimize the amount and extent of incidental take from staging the construction activities from the streambank by developing and implementing effective pollution control measures to minimize the potential for fuel spills and other contamination into and within the river.

3. Minimize the amount and extent of take from loss of instream habitat by taking measures to avoid impacts to riparian and instream habitat, or where impacts are unavoidable, to mitigate for the loss of instream habitat by restoring riparian function.

4. Ensure prescribed conservation measures are effective in minimizing the likelihood of take from permitted activities and that the proposed mitigation actions are performing adequately by submitting a monitoring and evaluation report to the NRCS and NOAA Fisheries.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the NRCS and/or their contractors must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (rock placement), the NRCS shall require completion of the following:
   a. All work will be done within the time recommended by the ODFW district biologist and watershed manager, and outside of the timing of UWR chinook salmon and UWR steelhead migration. Work within the active wetted channel will be completed during the ODFW (2000) preferred in-water work period[1], unless otherwise approved in writing by NOAA Fisheries.
   b. All work will be staged from the streambank, with all equipment operating from a base that is above the ordinary high water mark. Equipment entry into the active flowing channel will be limited to the arm of the heavy equipment that will be used to place the rock.
   c. Containment measures adequate to prevent construction materials from entering any waterway shall be implemented.
   d. Rock will be placed individually and not end-dumped.
   e. Barb design. Barbs will be designed as follows:

[1] Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000) (identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

i. No part of the barb structure will exceed bankfull[2] elevation, including all rock buried in the bank key. The trench excavated for the bank key will be filled above bankfull elevation with soil and topped with vegetation.
ii. Maximum barb length will not exceed 1/4 of the bankfull channel width.
iii. Rock will be individually placed without end dumping.
iv. Woody riparian planting will be included as a project component.
(1) Class 350 metric or larger rock is preferred unless it will constrict the channel migration zone.
(2) Wood placed as a component of streambank protection projects will be large, intact, hard, and undecayed to partly decaying with untrimmed root wads to provide functional refugia habitat for fish. Fragmented wood that is decayed and laying on the ground or partially sunken in the ground is not acceptable.

2. To implement Reasonable and Prudent Measure #2 (pollution control), there will be pollution control measures that include the following:
a. Vehicle maintenance, re-fueling of vehicles and storage of fuel shall be done at least 150 feet from the 2-year flood elevation, or in an adequate fueling containment area approved by NOAA Fisheries or NRCS. The equipment and vehicle staging activities from the streambank will be limited to the vehicles needed to deliver rock and place it in the water. All other staging will occur at least 150 feet from the 2-year floodplain.
b. At the end of each work shift, vehicles shall be stored greater than 150 feet (horizontal distance) from the 2-year flood elevation. This does not apply to the heavy equipment used to place the rock.

3. To implement Reasonable and Prudent Measure #3 (minimization of habitat loss), the NRCS shall operate under the following guidelines:
a. Only clean rock, of a size adequate to ensure stability of the repair, will be used to complete the scour repair project, and no more than 200 cy of rock will be placed.
b. The NRCS and applicants will compensate for the loss of instream habitat by restoring riparian functions along the streambank where the work will be staged.
c. No pesticide application is allowed, although mechanical or other methods may be used to control weeds and unwanted vegetation. No surface application of fertilizer may occur within 50 feet of any stream channel.

d. Fencing must be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

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[2]"Bankfull elevation" means the bank height inundated by a 1.5 to 2 year recurrence interval, and may be estimated by morphological features such as average bank height, scour lines, and vegetation limits.

4. To implement Reasonable and Prudent Measure #4 (monitoring and reporting), the NRCS shall ensure that:
   a. Within 90 days of completing the project, NRCS will submit a monitoring report to NOAA Fisheries describing the success of their project. This report will consist of the following information:
      i. Name, and NOAA Fisheries' Tracking Number (2002/00599).
      ii. Starting and ending dates of work completed for this project; an the NRCS contact person.
      iv. Summary of pollution and erosion control compliance, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials shall be provided.
      v. A narrative assessment of the project's effects on natural stream function, and the effects of the barbs on the adjacent banks.
      vi. Planting density, and coverage including both plantings and natural recruitment at 3 years.
      vii. Photographic documentation of environmental conditions at the project site and compensatory mitigation site(s) before, during and after project completion.
         (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.
         (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
         (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.
   b. Failure to provide timely monitoring. If NRCS fails to provide specified monitoring information by the required date, NOAA Fisheries will consider that a modification of the action that causes an effect on listed species not previously considered and invalidates this Incidental Take Statement.
   c. All monitoring reports shall be submitted to:

      NOAA Fisheries
      Oregon Habitat Branch, Habitat Conservation Division
      Attn: 2002/00599
      525 NE Oregon Street, Suite 500
      Portland, Oregon 97232-2778

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH, "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include aquatic areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities. "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem, and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH

consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon, and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border.

Detailed descriptions and identifications of EFH for the groundfish species are found in the *Final Environmental Assessment/Regulatory Impact Review for Amendment 11 to The Pacific Coast Groundfish Management Plan* (PFMC 1998a) and *NOAA Fisheries Essential Fish Habitat for West Coast Groundfish Appendix* (Casillas *et al.* 1998). Detailed descriptions and identifications of EFH for the coastal pelagic species are found in Amendment 8 to the *Coastal Pelagic Species Fishery Management Plan* (PFMC 1998b). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed action is detailed above in section 1.2. This area has been designated as EFH for various life stages of chinook salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5, the proposed activities may result in detrimental short-term adverse effects, but long-term improvements to certain habitat parameters. These impacts include: the release of sediment during the placement of rock for the construction of the barb, disturbance to the existing riparian habitat on the streambank above the location of the scour repair site, and minor changes to the hydraulic regime of the channel. Long-term improvement in habitat will occur through continued scouring of the barbs, and increased riparian vegetation.

3.6 Conclusion

NOAA Fisheries believes that the proposed action may adversely affect the EFH for chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the NRCS and all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2 and 2.3 are applicable to EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The NRCS must reinitiate EFH consultation with NOAA Fisheries if the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

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